

PROJECT PROFILE

GREEN INDUSTRIAL ANALYSIS

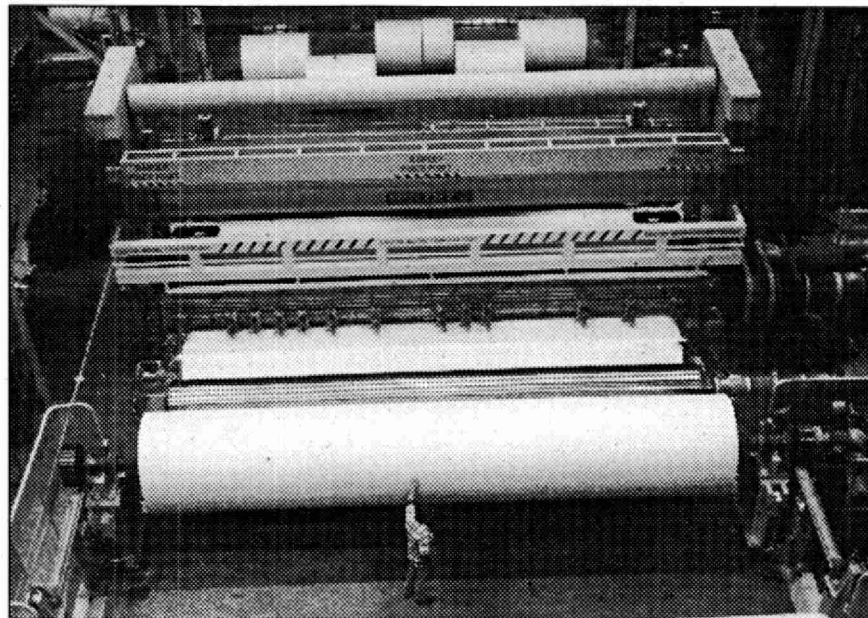


Quno Corporation

Thorold, Ontario

"At QUNO Corporation we are committed to protecting and conserving the environment and to continuous improvement in our environmental management practices. We therefore have an on-going interest in improving our effluent quality, reducing energy consumption and using resources in the most efficient way. The green analysis of our Thorold mill has been very helpful to us in these areas."

Mr. R.B. Williams
Director Environmental Affairs,
Quno Corp.



Newsprint reels at the Thorold mill

THE COMPANY

QUNO's Ontario newsprint mill in Thorold was founded in 1913 as an integrated pulp and paper mill on the banks of the Welland Canal. In 1982, QUNO replaced the original mill with a state of the art pulp and papermaking facility at a cost of \$260 million. Five years later, the company replaced the sulphite pulping process with a new process for de-inking old newspapers. The change resulted in the closing of the sulphite and associated chemical plants.

QUNO is now the largest recycler of old newspapers in Canada. The Thorold mill produces 372,000 metric tons of newsprint, of which 75 per cent is from recycled newspapers.

THE CHALLENGE

In 1994, QUNO faced the challenge of reducing costs and becoming more cost competitive. It was interested in cutting the mill's heavy consumption of electricity, natural gas, and water. The company also wanted to improve the quality of its effluent.

To meet this challenge, QUNO selected Sandwell Engineering to

do a green industrial analysis. The Burlington-based engineering consultant has considerable experience in the pulp and paper industry.

The purpose of the analysis was to help QUNO set priorities and make plans for implementing capital and operational projects related to "green" opportunities. The task was to identify, analyze and recommend appropriate opportunities to reduce the amount of water and energy used and the amount of effluent and solid waste generated. The analysis was also intended to find ways for the Thorold operation to make its processes more efficient as well as to conserve resources and to protect the environment.

OPPORTUNITIES

The analysis focused on the following process areas which plant management considered a high priority:

- * reducing water and energy use;
- * recovering heat from effluent streams;

- * controlling effluent by on-line, continuous monitoring of biological oxygen demand (BOD);
- * treating press white-water so it can be reused;
- * increasing the amount of sludge removed with an improved secondary clarifier.

Although QUNO had been actively pursuing green opportunities in the plant, the analysis pointed out 15 ways the company could save energy and reduce the effect the operations had on the environment. For example, according to the analysis, the company could reduce the amount of canal water used by 22 per cent and the amount of natural gas used by 23 per cent.



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POTENTIAL SAVINGS

If QUNO implemented all the recommendations, the estimated annual savings would be:

* Electricity	\$ 139,253
* Natural gas	998,752
* Water	70,938
* Liquid effluent	165,454
* Chemical treatment of effluent	22,500
* Other savings	63,400
	\$1,460,297

To realize these savings would require an initial capital investment of \$5,510,000.

RECOMMENDATIONS

The Green Analysis Report included the following major recommendations:

(1) Improved water pumping:

By replacing obsolete pumps and filters with modern equipment, QUNO could avoid the need to spend \$2.9 million to rehabilitate existing old pumps and motors. Further, the company could save \$85,000 in electricity costs. The payback period was estimated to be 4.7 years.

(2) Closed Loop Process Cooling Water:

By reusing warm water that would otherwise be wasted, the load on the sewage treatment plant would be reduced and the company could save \$136,000 in natural gas costs. The payback period was estimated to be two years

(3) Heat Removal From Mill Effluent:

By using heat exchangers to reduce the temperature of selected process streams which go to the sewer and then reusing that heat in the plant, QUNO could save \$763,000 in natural gas costs and treat its plant effluent safely. The payback period was estimated to be six months.

(4) BOD Indicator:

Old methods for testing the BOD level of the effluent stream take days for the results to become available. This makes correcting any upset almost impossible. A new on-line, continuous BOD meter would allow the company to correct any upsets immediately and to control the quality of its effluent more accurately. The cost of this instrument is \$80,000 with a 3.6 year payback.

QUNO has already started implementing a number of these recommendations.

These improvements could be duplicated in paper mills in Ontario, particularly older mills which now require re-engineering to modernize or to modify their operations.

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies located in Ontario may seek ministry/industry services that will help them to:

- * use energy and water more efficiently;
- * reduce, reuse and recycle solid waste; and
- * reduce or eliminate liquid effluent and gaseous emissions.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.

FOR FURTHER INFORMATION, PLEASE CONTACT:

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MINISTRY OF ENVIRONMENT AND ENERGY SERVICES

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416)327-1492, Fax (416)327-1261.

This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about findings and recommendations of a resource conservation and environmental analysis conducted by a consulting engineering firm at an industrial plant in Ontario.

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